

Monday, March 14, 2011

Water injected into Fukushima reactor

Radioactive leak at No. 3 no health risk: Edano

Compiled from Kyodo, AP

Authorities scrambled Sunday to control an overheating reactor at the problem-prone Fukushima No. 1 nuclear power plant by injecting seawater and venting gas to reduce the pressure inside.

While acknowledging that the core of the plant's No. 3 reactor may have overheated and deformed, Chief Cabinet Secretary Yukio Edano denied it led to a meltdown of the critical fuel rods.

At a news conference, Edano said that "a very small amount" of radioactive substances had leaked from the No. 3 reactor, dismissing concerns it posed a threat to human health.

The government's top spokesman warned, however, that a hydrogen explosion similar to the one that blew up a building housing a separate reactor at the facility Saturday could occur again at this reactor.

Large amounts of hydrogen formed when the water injection procedure temporarily ran into trouble and may have filled the upper part of the building housing the No. 3 reactor, Edano said.

The developments came after the cooling systems for some of the plant's reactors failed after the magnitude 9.0 earthquake hit eastern Japan on Friday. The failure caused the core of the No. 1 reactor to partially melt Saturday, triggering fears of a nuclear disaster.

Hidehiko Nishiyama, a senior official at the Ministry of Economy, Trade and Industry, indicated Sunday that the core of the No. 3 reactor had also undergone some melting.

"I don't think the fuel rods themselves have been spared damage," he said.

The operator of the plant, Tokyo Electric Power Co., began injecting fresh water into the No. 3 reactor's core on Sunday after learning that the tops of its MOX fuel rods were sticking 3 meters out of the cooling water. The rods must be completely covered to avoid overheating.

But after trouble developed with the pump for the fresh water, the company was forced to pour seawater into it, a step that will eventually lead to the reactor's dismantlement. The desperate step, however, caused water levels to rise, Edano said.

Radiation around the reactor exceeded the legal limit to hit 1,557 microsieverts per hour at 1:52 p.m. This rate then fell to 184 microsieverts about 50 minutes later. At this level, Edano said a hydrogen explosion is unlikely to affect human health, even one occurs.

Meanwhile, radiation at the Onagawa nuclear power plant in Miyagi Prefecture shot up from late Saturday through early Sunday, Tohoku Electric Power Co. said, adding that radiation levels were low but about 700 times higher than normal.

The government's Nuclear and Industrial Safety Agency said the rise in radiation



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was likely caused by substances scattered by the hydrogen explosion that hit the troubled Fukushima plant on Saturday, dismissing the possibility that the Miyagi plant was to blame.

The No. 3 reactor is the sixth reactor overall linked to the Fukushima No. 1 and No. 2 plants to experience cooling failures since the massive earthquake and ensuing tsunami struck Japan on Friday. The plants sit about 11 km from each other.

The nuclear crisis is raising fears of radiation exposure.

Nineteen people who evacuated from an area within 3 km of the No. 1 plant were found to have been irradiated, joining three others already exposed, the Fukushima Prefectural Government said Sunday.

Another 160 people are feared to have been exposed as well, the government agency said.

The Fire and Disaster Management Agency said that 15 people were found contaminated with radioactive material at a hospital within 10 km of the reactor.

To measure radiation for residents who may have been exposed and determine whether they need emergency treatment, the National Institute of Radiological Sciences sent 17 doctors and experts to the city of Fukushima on Sunday.

Meanwhile, electric power companies in other regions, as well as Japan Nuclear Fuel Ltd., have dispatched 48 people to help Tepco deal with the crisis at the Fukushima power plants.

In Vienna on Saturday, the International Atomic Energy Agency said Japanese authorities had informed it that iodine pills would be distributed to residents around the Fukushima Daiichi and Daini plants.

The government and nuclear authorities said Saturday's explosion at the No. 1 reactor did not damage the steel containment vessel housing its core, noting the blast happened when vapor from the vessel turned into hydrogen and mixed with outside oxygen.

Tokyo Electric Power has begun new cooling operations to fill the reactor with seawater and pour in boric acid to prevent a criticality — a spontaneous atomic chain reaction — from occurring.

Edano said in a news conference Sunday morning that there had been no major changes in the results of radioactivity monitoring near the No. 1 reactor.

In the types of reactors involved, water is used to cool the reactor core and produce steam to turn the turbines that make electricity. The water contains two of the least dangerous forms of radioactivity now in the news — radioactive nitrogen and tritium. Normal plant operations produce both of them in the cooling water, and they are even released routinely in small amounts into the environment, usually through tall chimneys.

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